

Claim(s)

1. A method for inhibiting cholesterol uptake in the gut comprising the step of administering to an individual an inhibitor of an ABC1 protein.
2. A method as claimed in claim 1 wherein the inhibitor is a sulfonylurea
5 compound.
3. A method for lowering levels of LDL cholesterol in an individual comprising the step of administering orally to that individual an agent which reduces the activity of the ABC1 protein in the intestinal cells of the individual.
- 10 4. A method as claimed in claim 3 wherein the agent acts by lowering the abundance of the ABC1 protein in the individual.
5. A method as claimed in claim 3 wherein the agent acts by inhibiting the activity of the ABC1 protein.
6. A method as claimed in claim 3 wherein the agent is administered orally.
- 15 7. A method for testing humans for their allele of the ABC1 gene comprising the steps of orally administering to the humans a quantity of a carotenoid containing substance; and monitoring the levels of carotenoids in the human's serum after such administration.
- 20 8. A method for identifying drugs that can lower serum cholesterol levels comprising assaying the drug to test if it can bind to an ABC1 protein.
9. A method for testing LDL cholesterol lowering agents comprising the steps of feeding the agents to WHAM chickens and monitoring the effect on the cholesterol levels of the chickens.

10. A method for identifying agents for effectiveness in lowering serum levels of LDL comprising the steps of, in either order:

assaying the agent for its ability to inhibit the activity of the ABC1 protein; and
assaying the agent for lack on activity in stimulating insulin production.

5 11. A method for reducing transport of cholesterol from the gut to the blood comprising administering an ABC1 modulating compound to an animal and thereby reducing such transport.

10 12. A screening assay for determining whether a candidate compound is useful for reducing transport of cholesterol from the gut to the blood or lymph, or for lowering LDL or serum cholesterol levels comprising

(a) providing an assay system having a measureable ABC1 biological activity;
(b) contacting the assay with the candidate compound; and
(c) measuring ABC1 biological activity,

15 wherein modulation of ABC1 biological activity, relative to an assay not contacted with the candidate compound, indicates that the candidate compound is useful for the treatment of said disease or condition.

13. The screening assay of claim 12 wherein the assay system is a cell based system

14. The screening assay of claim 12 wherein the assay system is a cell free system.

20 15. A screening assay for identifying a substance to be tested for an ability to reduce transport of cholesterol from the gut to the blood or lymph, or for lowering LDL or serum cholesterol levels comprising assaying the ability of the substance to modulate expression or activity of the ABC1 gene product by

(a) exposing a subject or cell to a test substance;

25 (b) assaying the expression level of, or the activity of, the ABC1 gene product in the subject or cell and a control subject or cell which is not exposed to the test substance; and

(c) comparing the expression level of or the activity of the ABC1 gene product in the subject or cell to the control subject or cell,

30 wherein a test substance that modulates expression or activity of the ABC1 gene product is a substance to be tested for an ability to ameliorate said disease or condition.

16. A screening assay for determining whether a candidate compound has the ability to reduce transport of cholesterol from the gut to the blood or lymph, or to lower LDL or serum cholesterol levels, said screening assay comprises the steps of:

- (a) providing a cell expressing an ABC1 gene or a fragment thereof;
 - 5 (b) contacting said cell with said candidate compound; and
 - (c) measuring ABC1 activity of said cell,
- wherein altered ABC1 activity, relative to a cell not contacted with said compound, indicates that said candidate compound has said ability.

17. A compound for reducing transport of cholesterol from the gut to the blood or
10 lymph or for lowering LDL or serum cholesterol levels identified by a screening assay wherein such compound modulates the biological activity of ABC1.

18. The compound of claim 17 wherein the compound antagonizes ABC1 activity.

19. The compound of claim 17 wherein the compound agonizes ABC1 activity.

20. The compound of claim 17 wherein such compound is administered orally.

15 21. A compound useful for reducing transport of cholesterol from the gut to the blood or lymph, or for lowering LDL or serum cholesterol levels identified by

- (a) providing an assay system having a measureable ABC1 biological activity;
 - (b) contacting the assay with the candidate compound; and
 - (c) measuring ABC1 biological activity,
- 20 wherein modulation of ABC1 biological activity, relative to an assay not contacted with the compound, indicates that the candidate compound is so useful.